Wisconsin
Department of Commerce

Approval # 980018-U
(Replaces 920059-U)

Safety & Buildings Division
201 West Washington Avenue
P.O. Box 2689
Madison, WI 53701

Wisconsin
Material Approval

Material: VacuTect Nonvolumetric Tank Tightness Test

Manufacturer: Tanknology-NDE
8900 Shoal Creek Boulevard #200
Austin, Texas 78757

SCOPE OF EVALUATION

The VacuTect precision test, manufactured by Tanknology –NDE , has been evaluated in accordance with **s. ILHR 10.61(3)** of the current edition of the Wisconsin Administrative Flammable and Combustible Liquids Code.

DESCRIPTION AND USE

The VacuTect Precision Test is non-volumetric and is not affected by temperature changes, tank dimensional changes, end deflection or trapped vapor pockets. An instrumented stainless steel probe is lowered through the fill pipe which is sealed by an inflatable bladder. Signals from the probe are conveyed by a multi-conductor cable to the computer command console. A vacuum line is connected to the vent pipe. A UL approved vacuum pump controlled by the computer reduces the pressure in the tank sufficiently to cause air and/or water to leak into the tank through any existing leaks. Air drawn into the tank forms bubbles over each leak. As each bubble reaches sufficient size to break loose and float to the surface, it undergoes a volume pulsation. The frequency of bubble vibration is

inversely proportional to the hole size, indicating the leak size. The unique bubble sound or signature cannot be confused with other sounds. Many tanks are sitting in water, if water is drawn into the tank, it is detected and measured by a water sensor extending the bottom five inches of the probe.

Leaks in the tank top or ullage area are detected and confirmed as follows: Air ingress is detected by the probe Hydrophone and the air-hiss is recorded. Any ullage leaks are verified by evaluating the vacuum pump cycles with air leaking into the ullage. The vacuum pump must cycle ON to maintain the computer controlled vacuum level. A tight system will be indicated by the decreasing vacuum pump cycles.

There is no minimum waiting time after adding product to the tank to be tested. The typical test time is 2.5 hours. The necessary test time will increase if water is found in the tank. The VacuTect system will detect a minimum water level of 0.017 inches, and a minimum change in water level of 0.001 inches.

Underground storage tank systems tested with the VacuTect method are determined to be leaking if air bubbles are detected during the test, or if an increase of water is detected during the test.

The VacuTect precision test is performed by persons trained and certified by Tanknology -NDE.

TESTS AND RESULTS

The performance of VacuTect precision test as a tank tightness testing method was verified by Midwest Research Institute and Ken Wilcox Associates in accordance with the EPA Protocol for nonvolumetric tank tightness testing systems. The VacuTect system was found to detect a leak of 0.1 gph with 100 percent probability of detection and 0.0 percent probability of false alarm.

LIMITATIONS OF APPROVAL

The VacuTect precision test is approved for use as a method of tank tightness testing specified in **s. ILHR 10.61 (3)**.

The VacuTect precision test is approved for use on systems containing commercial petroleum products which are compatible with the sensors, and tank sizes no greater than 75,000 gallons.

Tanks sized up to 30,000 gallons shall be between 5 percent and 95 percent full of product. Tanks sized between 30,001 and 75,000 gallons shall be between 60 percent and 95 percent full of product.

The procedure specified by Tanknology-NDE shall be used to conduct tests.

This approval will be valid through December 31, 2003 unless manufacturing modifications are made to the product or a re-examination is deemed necessary by the department. The Wisconsin Material

Approval Number must be provided when building plans which include this product are submitted for review.

DISCLAIMER

The department is in no way endorsing or advertising this product. This approval addresses only the specified applications for the product and does not waive any code requirement not specified in this document.

Reviewed by: _____

Approval Date: _____ By: _____
Duane D. Hubeler
Mechanical Code Consultant
Program Development Bureau

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